STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

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MEMORANDUM TO: Project Engineers
Project Design Engineers

FROM: G. R. Perfetti, P. E.
State Bridge Design Engineer

DATE: October 21, 2005 (Revised October 24, 2005)

SUBJECT: INTERMEDIATE STEEL DIAPHRAGMS FOR AASHTO SHAPE GIRDERS

Effective with the January 2006 letting, it will be the Structure Design Unit's policy to detail intermediate steel diaphragms in lieu of cast-in-place concrete diaphragms on all prestressed girder bridges using AASHTO Shapes II, III or IV. In addition, the number of diaphragms required per span has been revised and shall now be as follows:

- None for spans less than 40 feet,
- One diaphragm at mid-span for spans between 40 and 100 feet, inclusive, and
- Two diaphragms at third points for spans over 100 feet.

A new standard drawing, PCG12 (PCG12SM), has been developed and is available for your use. PCG12(SM) should be used in conjunction with Standard Drawings PCG1, (PCG1SM), PCG2(PCG2SM), PCG3 (PCG3SM), PCG4 (PCG4SM), PCG5 (PCG5SM) and PCG6 (PCG6SM) and may be used for all skew angles. For skews between 70^{o} and 110^{o}, the diaphragm(s) shall be placed nearly along the skew with bent connector plates, as shown on the standard drawing. For all other skew angles, detail the diaphragms normal to the girder web and stagger the connector plates.

For corrosive environments, the steel diaphragms and assembly hardware shall be metallized, with no option to galvanize. Modify the standard note to require metallizing only.

As a result of the above policy, Standard Drawings PCG1(SM) through PCG6(SM) have been revised to include details showing the size of the connector plate holes through the girder web and reinforcing around the holes.

The new and revised standard drawings are available on both the network drive and via the Structure Design Homepage. Please download and print copies to be incorporated into your copy of the Structure Standards and Metric Structure Standards books. The Design Manual will be updated at a later date.

GRP/GM/snj

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